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## CLAIMS

1. A method for isolating fetal cells present in maternal peripheral blood for prenatal genetic investigation, comprising the steps of:

5 a) transferring maternal blood into non-physiological tissue culture medium, which after addition of an aqueous solution containing citric acid, Na citrate and dextran, has the following characteristics:

pH	6.4 – 6.6
osmolality	300-330 mOsm
Na <sup>+</sup>	150-170 mmol/l
10 K <sup>+</sup>	4.5-5.5 mmol/l
Cl <sup>-</sup>	100-115 mmol/l
Ca <sup>++</sup>	1.00-2.50 mmol/l
glucose	400-500 mg/dl
lactate	10-20 mg/d

15 b) maternal blood, as modified in a) is transferred into a cell separation device, followed by the introduction into the said separation device of a liquid having an higher density and containing a RBCs aggregating agent;

c) the nucleated cells, having a lower density than the liquid introduced in the step b) are isolated, in the discontinuous density gradient, by subjecting the separation device to centrifugal force;

20 d) the isolated cells are washed and resuspended in tissue culture medium to regain physiological cell metabolism;

e) fetal cells are identified by appropriate procedures and counted.

2. The method of claim 1 whereby fetal NRBCs are isolated.

25 3. The method of claim 3 in which the non-physiological medium obtained in step

a) has the following characteristics:

pH	6.5
osmolality	320 mOsm
Na <sup>+</sup>	165 mmol/l
30 K <sup>+</sup>	5.35 mmol/l
Cl <sup>-</sup>	110 mmol/l
Ca <sup>++</sup>	1.25 mmol/l

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glucose 500 mg/dl

lactate 10 mg/dl

4. The method of claim 1 in which the RBCs aggregating agent of step b) is Ficoll.

5 5. The method of claim 1 in which the density of the liquid introduced in the separation device by the step b) is 1.068 g/ml.

6. The method of claim 1 in which the separation device used in step b), comprises an elongated chamber (1), whose cross section decreases from the base towards the top, at least a first channel (2) one end of which opens into the 10 said chamber near the said base and the other end is connected to a pressurized liquid source, and a second channel (3) one end of which opens into the same chamber (1) at the device top while the other end opens at the exterior of the device, the said device further comprising at least one additional channel (4), one end of which opens at a middle level of said chamber height and the other end 15 opens at the exterior of the device .